



Pterostylis fischii Fisch's Greenhood

Taxonomy

Pterostylis fischii Nicholls

The taxon is known to hybridise with *P. laxa* where the two taxa grow together (VicFlora 2015).

Current conservation status

Categorised as Rare in the 2014 Advisory list of rare or threatened flora (DEPI 2014).

Proposed conservation status

Endangered in Victoria

Criterion A2ac

Species Information

Description and Life History

The taxon is a flowering plant to 25 cm tall, stem leaves 3-5, closely sheathing. Rosette leaves 3-6, ovate, 0.5-2 cm long, 0.6-1.2 cm wide, petiolate, margins entire. Flower 2-2.5 cm long, erect, green, white and rusty brown, dark red-brown towards apex of galea; dorsal sepal with a decurved filiform point 5-15 mm long; lateral sepals erect, tightly embracing the galea, sinus broadly v-shaped when viewed from the front, protruding in a prominent curve when viewed from the side, free points 1.5-3 cm long, filiform, erect; petal margins not flared. Labellum oblong-elliptic, 8-10 mm long, 3-4 mm wide, apex dark brown, obtuse to truncate or slightly notched, not visible through the sinus in the set position (VicFlora 2015).

The taxon flowers from February to June, and colonies usually consist mostly of non-flowering plant (Backhouse et al. 2016).

Generation Length

The generation length of *Pterostylis fischii* is estimated to be 20 to 40 (midpoint 30) years. Generation time for non-colonial terrestrial orchids is estimated to be a nominal 30 years based on the annual replacement of the mother tuber by daughter tubers. Whilst somatically immortal, each individual is susceptible to endogenous exhaustion or environmental causes of mortality at rates likely to result in replacement at intervals of several decades only. Such orchids are classed as obligate seed regenerators as they are reliant on seed-based recruitment for population maintenance.*

Distribution

The taxon occurs in eastern Victoria, from near the coast in South Gippsland to the mountains. The altitude range is from 50-1,100 metres above sea level. The taxon also occurs in New South Wales and Queensland (Backhouse et al. 2016). The taxon is conserved in several biological reserves including the Alpine National Park (NP) and the Snowy River NP.

Habitat

The taxon is restricted and uncommon in eastern Victoria. It is known from near-coastal open forests and healthy woodlands to montane woodlands in damp shady places. It often occurs among grass and bracken, on well-drained sandy to clay loam soils (VicFlora 2015; Backhouse *et al.* 2016).

Threats

The taxon has suffered historic losses due to land clearing and loss of habitat. Currently, it is generally protected and conserved in forest reserves of eastern Victoria. However, climate-induced drying and warming, and increasing fire frequency and intensity may have future negative impacts.

IUCN Criteria

Criterion A. Population size reduction. Population reduction (measured over the longer of 10 years or 3 generations) based on any of A1 to A4			
	Critically Endangered	Endangered	Vulnerable
A1	≥ 90%	≥ 70%	≥ 50%
A2, A3, A4	≥ 80%	≥ 50%	≥ 30%

<p>A1 Population reduction observed, estimated, inferred or suspected in the past and the causes of the reduction are clearly reversible AND understood AND ceased.</p> <p>A2 Population reduction observed, estimated, inferred or suspected in the past where the causes of the reduction may not have ceased OR may not be understood OR may not be reversible.</p> <p>A3 Population reduction, projected or suspected to be met in the future (up to a maximum of 100 years) [(a) cannot be used for A3]</p> <p>A4 An observed, estimated, inferred, projected or suspected population reduction where the time period must include both the past and the future (up to a max. of 100 years in future), and where the causes of reduction may not have ceased OR may not be understood OR may not be reversible.</p>	<p>based on any of the following:</p>	<p>(a) direct observation [except A3]</p> <p>(b) an index of abundance appropriate to the taxon</p> <p>(c) a decline in area of occupancy, extent of occurrence and/or quality of habitat</p> <p>(d) actual or potential levels of exploitation</p> <p>(e) the effects of introduced taxa, hybridization, pathogens, pollutants, competitors or parasites</p>
--	---------------------------------------	---

Evidence:

Eligible under Criterion A2 as Endangered

The population reduction over the past 60 to 120 years is suspected to be 30 to 70% (interval 50%), based on (a) and (c) above.

While most of the habitat is in reserves, there has been loss of habitat in the past.

The causes of the reduction may not have ceased, be understood or be reversible.

Eligible under Criterion A2 as Vulnerable

The population reduction over any 60 to 120 year period, including both past and future (up to 100 years in the future) is suspected to be 25 to 40%, based on (a) and (c) above.

Criterion B. Geographic range in the form of either B1 (extent of occurrence) and/or B2 (area of occupancy)			
	Critically Endangered Very restricted	Endangered Restricted	Vulnerable Limited
B1. Extent of occurrence (EOO)	< 100 km ²	< 5,000 km ²	< 20,000 km ²
B2. Area of occupancy (AOO)	< 10 km ²	< 500 km ²	< 2,000 km ²
AND at least 2 of the following 3 conditions:			
(a) Severely fragmented OR Number of locations	= 1	≤ 5	≤ 10
(b) Continuing decline observed, estimated, inferred or projected in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) area, extent and/or quality of habitat; (iv) number of locations or subpopulations; (v) number of mature individuals			
(c) Extreme fluctuations in any of: (i) extent of occurrence; (ii) area of occupancy; (iii) number of locations or subpopulations; (iv) number of mature individuals			

Evidence:

Ineligible under Criterion B

The Extent of Occurrence (EoO) across the taxon's range, based on accepted, post-1970 records in the Victorian Biodiversity Atlas (VBA), is estimated to be 27,922 km² which exceeds the threshold for criterion B.

The Area of Occupancy (AoO) across the taxon's range, based on 2 x 2 km grids derived from accepted, post-1970 records in the VBA, is estimated to be 258 km² but other thresholds under this criterion have not been met.

Criterion C. Small Population size and decline				
		Critically Endangered	Endangered	Vulnerable
Number of mature individuals		< 250	< 2,500	< 10,000
AND at least one of <u>C1</u> or <u>C2</u>				
<u>C1</u>	An observed, estimated or projected continuing decline of at least (up to a max. of 100 years in future):	25% in 3 years or 1 generation (whichever is longer)	20% in 5 years or 2 generations (whichever is longer)	10% in 10 years or 3 generations (whichever is longer)
<u>C2</u>	An observed, estimated, projected or inferred continuing decline AND least 1 of the following 3 conditions:			
(a)	(i) Number of mature individuals in each subpopulation	≤ 50	≤ 250	≤ 1,000
	(ii) % of mature individuals in one subpopulation =	90 – 100%	95 – 100%	100%
(b) Extreme fluctuations in the number of mature individuals				

Evidence:

Ineligible under Criterion C

It is estimated that there are 50,000 to 100,000 mature individuals, which exceeds the thresholds for criterion C.

Criterion D - Very small or restricted population			
	Critically Endangered	Endangered	Vulnerable
Number of mature individuals (observed or estimated)	<50	<250	<1,000
D2 - Only applies to the VU category Restricted area of occupancy or number of locations with a plausible future threat that could drive the species to critically endangered or Extinct in a very short time.	-	-	D2 - Typically: AoO < 20 km ² or number of locations ≤ 5

Evidence:

Ineligible under Criterion D

It is estimated that there are 50,000 to 100,000 mature individuals.

Criterion E (Quantitative Analysis) was not addressed as the taxon does not have a detailed Population Viability Analysis.

References

- Backhouse, G., Kosky, B., Rouse, D., and Turner, J. (2016). *Bush Gems: A Guide to the Wild Orchids of Victoria, Australia*. Melbourne, Victoria: EBook.
- DEPI (2014). *Advisory list of rare or threatened plants in Victoria - 2014*. Department of Environment and Primary Industries, Melbourne.
- Nicholls, W.H. (1950). Additions to the Orchidaceae of Australia-III (Two New Species of *Pterostylis* in Victoria). *The Victorian Naturalist*, 67(3), 45.
- VicFlora (2015). Flora of Victoria, Royal Botanic Gardens Victoria: *Pterostylis fischii*. Retrieved from: <https://vicflora.rbg.vic.gov.au/flora/taxon/9354c588-4454-43a3-8a43-b0530e347732>